

APPENDIX A

PEER REVIEW OF SECONDARY WASTE STREAM MASS FLOW RATES AND COMPOSITION

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TETRA TECH TEAM MEMORANDUM
LLMW Thermal Treatment EA

TO: Fred Moseley, Project Manager

DATE: March 29, 1996

FROM: Jim Bartosch, Waste Management

FILE NO: Memo #0396.29A

SUBJECT: Mass Balance Review

The scope of the review consisted of two elements: review of the mass balance data for fatal flaws and identification of possible outlier issues with the test data. Based on the data provided in the three reports and several calculations completed as part of the review, the data appears to balance for the three tests. I reviewed both the March 4 and March 6, 1996 reports Emissions Data Summary For the PEAT TDR System Processing: Contaminated Dunnage, Ash Waste, and Medical Waste. The March 4 and March 6 reports are essentially identical with the later version being more polished.

The mass balance review was completed using three types of calculations. The first calculation was an overall mass balance performed on each material stream entering and exiting various pieces of equipment (e.g. scrubber). This required using the process flow diagram and the data in the table of summary process streams provided in each report. The second calculation checked selected individual contaminant (e.g. aluminum) air emissions based on emissions concentrations data and sample calculations information. Similarly, the third calculation tracked the mass balance of selected individual contaminants (e.g. aluminum) found in the wastewater. Water emissions concentrations were provided in a table. It is noted that the proposed LLMW treatment facility would not discharge wastewater.

The tests clearly show high organic content wastes are destroyed, high metal content wastes are treated to meet LDR requirements, and radioactive elements introduced as part of the tests are successfully controlled in the residuals and wastewater. I did not find a fatal flaw requiring immediate correction.

Recognizing these tests are a snapshot and not the end all for air emissions of the proposed ATG facility, questions can be raised about data relevancy. The data represents the conditions at the time and parameters of the experiments. Because the data is not a test on actual operating parameters of the proposed ATG facility, the following issues may require further explanation in the future:

1. The tests' feed rates of the dunnage (20 lbs/hr), medical (50 lbs/hr), and ash wastes (86 lbs/hr) are less than the design feed rate of 150 lbs/hr for the ATG facility. An explanation of why the data is still applicable is necessary.
2. The test studies do not address highly chlorinated wastes and liquids with high concentrations of volatile organic compounds (VOCs).
3. For total facility emissions, the studies are not designed to address or cover fugitive emissions from drum handling (VOCs), drum sampling (VOCs), laboratory emissions, mercury waste operations, and macroencapsulation operations using high density polymers that may include emissions of styrene, toluene diisocyanate, and naphthalene.



4. Tritium contamination and emissions are not addressed.
5. The tests do not address PCB contaminated wastes while the ATG facility will be TSCA permitted.
6. The radioactive spikes tested are not transuranic. The public's fear of plutonium is very high. Addressing volatility of transuranic elements is probably appropriate.

None of these issues undermine the validity of the tests, but reflect the difficulty of precisely simulating full scale operational performance. Tests required for the permitting process, actual operation, and compliance monitoring are necessarily the true test of the success of the design and management of a facility. Problematic issues identified in actual tests and operation would be addressed to ensure safety and regulatory compliance.

I hope this information is sufficient. Thank you for opportunity to support the San Francisco Office.